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EPA

FACT SHEET

SITE
 SUPERFUND INNOVATIVE
 TECHNOLOGY EVALUATION

Demonstration of the SoilTech Anaerobic Thermal Processor at the Outboard Marine Corporation/Waukegan Harbor Superfund Site Waukegan, Illinois

INTRODUCTION

The U.S. Environmental Protection Agency's (EPA) Risk Reduction Engineering Laboratory will conduct a Superfund Innovative Technology Evaluation (SITE) demonstration at the Outboard Marine Corporation (OMC)/Waukegan Harbor Superfund site in Waukegan, Illinois. The SITE program, created in 1986, evaluates new and promising treatment technologies for hazardous waste site cleanup.

The technology being evaluated under the SITE program at the OMC site is the SoilTech Anaerobic Thermal Processor (ATP). The ATP technology was developed by Alberta Oil Sands Technology and Research Authority (AOSTRA) and is licensed by SoilTech ATP Systems, Inc. The ATP technology is a thermal process that removes organics, such as polychlorinated biphenyls (PCB), from soil and sludge. During the SITE evaluation, performance and cost data will be collected to determine the ATP's effectiveness in treating wastes at the OMC/Waukegan Harbor site.

SITE DESCRIPTION

The OMC site is located along Lake Michigan, near the intersection of Grand Avenue and Sheridan Road in Waukegan, Illinois, about 37 miles north of Chicago and 10 miles south of the Wisconsin border. The site has five separate areas of contamination: Waukegan Harbor, two on-site ditches, soil under the OMC parking lot, and a lagoon.

OMC manufactures marine products for recreational use. From about 1961 until 1972, OMC used a hydraulic fluid containing PCBs in aluminum die cast machines. The fluids leaked and escaped through floor drains. The floor drains discharged to an oil receptor system that eventually discharged to the North Ditch. Some of the PCBs escaped from a portion of the oil receptor system and were released into Waukegan Harbor.

In 1976, high levels of PCBs were discovered in the soils and sediments in the upper area of Waukegan Harbor and on OMC property. It is estimated that over 700,000 pounds (lbs) of PCBs are on OMC property and about 300,000 lbs of PCBs are in the upper area of Waukegan Harbor.

Following several years of litigation, OMC and EPA signed a consent decree in 1989, specifying the final terms for cleanup. The major aspects of the site cleanup include dredging the upper area of Waukegan Harbor, constructing three containment areas, and treating highly contaminated soils and sediments. Based on the results of treatability studies, the ATP technology was selected to treat the PCB-contaminated soils and sediments at the OMC site.

PURPOSE OF FACT SHEET

- ☐ Describe the EPA's SITE program technology demonstration of the SoilTech Anaerobic Thermal Processor
- ☐ Announce an EPA Visitors' Day scheduled for **June 25, 1992**, in Waukegan, Illinois

TECHNOLOGY DESCRIPTION

The ATP technology heats and mixes contaminated soils, sludges, and sediments in a special rotary kiln processor. The rotary kiln contains four separate internal thermal zones: preheat, retort, combustion, and cooling. The following paragraphs discuss how each zone processes waste.

Preheat Zone: The process begins when waste enters the preheat zone. In the preheat zone, volatile organic compounds (VOC) and water vaporize. A vacuum removes the vaporized contaminants and water to a preheat vapor cooling system. In the cooling system, most of the organic vapors and water vapor are condensed. The noncondensed light organic vapors are fed by a gas blower directly into the combustion zone of the processor. These vapors are used as fuel in the combustion zone. Condensed liquids are separated. The condensed water is treated and released and the condensed oil is collected for further treatment or off-site disposal.

Retort Zone: From the preheat zone, the hot waste feed passes through a sand seal to the retort zone. Here, heavy oils and semivolatile organic compounds (including PCBs) vaporize, and the thermal cracking of hydrocarbons forms coke and low molecular weight gases. A vacuum removes the vaporized contaminants to a retort gas handling system. After dust is removed from the gases, the gases are cooled. Condensed oil and water are collected for further treatment or off-site disposal, and noncondensed gases are returned to the combustion zone for use as fuel for the processor.

Combustion and Cooling Zones: The decontaminated solids pass through a second sand seal into the combustion zone. Commercial propane or natural gas is burned in the combustion zone as primary fuel. Small amounts of supplemental heat is derived from coke on the decontaminated solids in noncondensable gases. The hot solids are either recycled to the retort zone or sent to the cooling zone to be cooled. While exiting the cooling zone, treated soils are quenched with scrubber water and then transported by conveyor to an outside storage pile. Flue gas from the combustion zone is treated to remove particles, acid gases, and trace organics. The treated flue gas is then discharged to the atmosphere through a stack.



TECHNOLOGY DEMONSTRATION

The SITE technology demonstration will be conducted early in the OMC site remediation. The demonstration is scheduled for late June and will last about one week. During the demonstration, soil and sediment containing PCB concentrations of approximately 10,000 to 20,000 parts per million will be treated. Also, performance and cost data will be collected in three identical 8-hour test runs to evaluate the effectiveness of the ATP system.

The primary objectives of the ATP technology demonstration are as follows:

- Assess the ATP's ability to remove PCBs from contaminated sediment and soil.
- Determine whether the ATP system produces polychlorinated dibenzo-p-dioxins (PCDD) or polychlorinated dibenzofurans (PCDF), which are potential toxic decomposition products of PCBs.
- Document the ATP's operating conditions.
- Estimate capital and operating costs for the ATP technology.

TECHNOLOGY TRANSFER

After the SITE technology demonstration is complete, EPA will analyze the results. The demonstration results will be published in two major reports—the Applications Analysis Report and the Technology Evaluation Report—as well as in bulletins, technology profiles, and a videotape.

As part of the technology transfer effort and in conjunction with ongoing community relations activities, EPA is sponsoring a **Visitors' Day on June 25, 1992**. On this day, interested individuals are invited to view the OMC site and the ATP technology. If you would like to attend, please complete the attached registration form. This form may be faxed or called in to:

Lisa Scola
PRC Environmental Management, Inc.
233 North Michigan Avenue, Suite 1621
Chicago, IL 60601
Phone No: 312-856-8739
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ADDITIONAL INFORMATION

Questions concerning the SITE Program should be directed to:

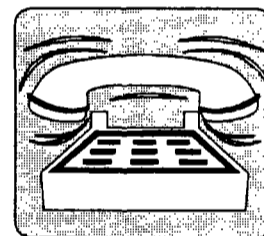
Paul dePercin, U.S. EPA SITE Project Manager
(513) 569-7797

Questions regarding the ATP technology should be directed to:

Joe Hutton, SoilTech ATP Systems, Inc.
(219) 929-4343

Questions regarding the OMC/Waukegan Harbor Superfund site should be directed to:

John Perrecone, U.S. EPA Community Relations Coordinator
(312) 353-1149



INSIDE: EPA announces a Visitors' Day for the SoilTech Anaerobic Thermal Processor in Waukegan, Illinois

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Attention: Paul dePercin

